

# OS

Onboard Station



## Highly functional total station with outstanding operability

- Windows® CE is ready in a lightweight, compact body
- MAGNET™ Field On-Board Application Software
- Fast and Powerful Reflectorless EDM
- LongLink Data Communication\*
- Advanced Angle Measurement System
- Long-lasting battery
- Rugged and User-friendly Design

\* Option



**TSshield**  
Exclusive TSshield  
technology built-in



# OS Series Onboard Station

All functions needed in the field are packed into a compact, lightweight body Windows® CE total station.



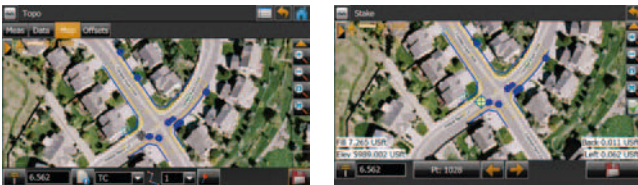
## Windows® CE is ready in a lightweight, compact body

- Windows® CE provides a familiar, comfortable operating environment.
- Completely new on-board software "MAGNET™ Field" is installed as standard feature.

## Magnet™ Field On-Board Software

Powerful on-board software that covers full functions for surveying and engineering tasks. MAGNET™ Field handles data collection, stake out, roads and coordinate geometry.

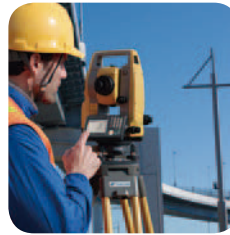
## MAGNET™ Field



## LongLink Data Communication\*

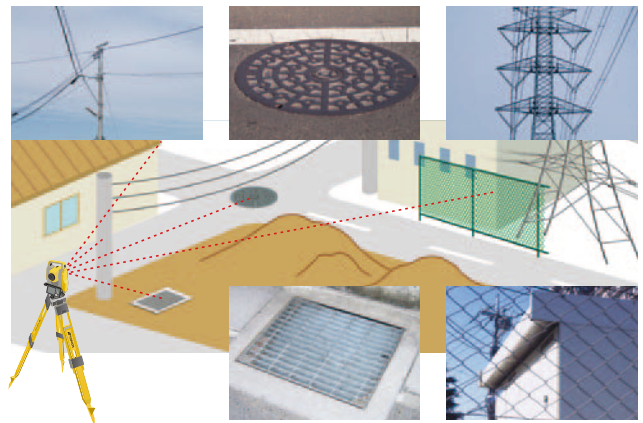
- Bluetooth® Class1 communications ensures a long-distance, stable connection.
- Link between total station and rover-end data collector, both equipped with
- Bluetooth Class1, facilitates quick surveying only by sighting the object.

\* Option

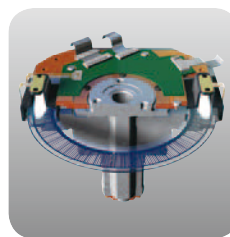


## Fast and Powerful Reflectorless EDM

- Fast and accurate pinpointing with phase shift technology.
- Fast distance measurement of 0.9s regardless of object.
- Minimum reflectorless measuring distance - just 30cm.
- Improved collimation with super-bright pointer.
- Smaller EDM beam spot size for minimal distance measuring error.
- Dependable measuring even at shallow incidence angles.
- Ensures accurate reflective sheet distance measurement.

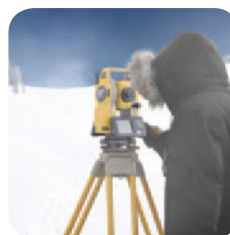


The ultra-narrow EDM beam can precisely measure walls, corners, manholes on the surface, even through chain-link fences and tree branches.



## Advanced Angle Measurement System

- OS features advanced absolute encoders for long-term reliability in all work conditions. Dual-axis compensation ensures accurate leveling even through on rough terrain.
- Motion clamp and tangent screw ensure stable angle measurement.
- OS-101 and OS-102 equipped with ground-breaking technology for extremely reliable angle measurement.



## Rugged Design

- IP65 dustproof/waterproof performance
- Standard usage temperature range -20°C to +60°C. Low temperature models can be used in range -30°C to +50°C.\*

\* Low temperature models are available as options.

## PRIMARY FEATURES

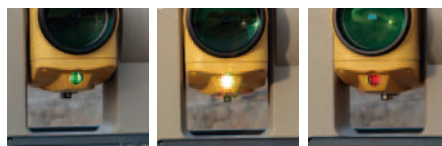
USB Type A and Type miniB port



Long-lasting battery: one battery provides 20 hours of power.



Green/Red Guide Light is built into the telescope as a standard feature, enhancing setting-out work efficiency in range of 1.3 to 150m.



Trigger key lets you take a series of measurements without taking your eye off the telescope. Trigger key is ergonomically placed so that measurement can be taken at any time with just the push of a button.



Star key [★] instantly brings up functions.



Control panel consists of 10-key pad with alphabet entry with color LCD touch screen display for easy viewing of graphics\*.

\*Control panel location may vary depending on region or model.

Built-in laser plummet is equipped for quick instrument setting. 5 brightness levels are ready for optimum visibility.\*

\*Option

## Cloud-Based Magnet™ Software\*

# MAGNET™



MAGNET is a software family that uses the “cloud” for seamless data connection between field and office, in Real-time, when and where you need, for data exchange, communications, asset tracking and more. To establish such connection, following items are required.

- MAGNET Enterprise
- MAGNET Office
- Data collector\* with MAGNET Field software

\*Data collector should be equipped with cell modem or WIFI

## KIT COMPONENTS

### Standard package components

- OS main unit
- Battery (BDC70)
- Battery charger (CDC68)
- Power Cable
- Lens cap
- Lens hood
- Tool pouch
- Screwdriver
- Lens brush
- Adjusting pin×2
- Cleaning cloth
- Operation manual
- USB memory key
- Laser caution sign-board
- Carrying case
- Carrying strap



## World's first support service only from Topcon

TSshield is a standard feature on all new model Topcon Group total stations. Its advanced communication system provides new opportunities to secure and maintain your instrument.



\*For more detail of TSshield, please refer to the TSshield's leaflet.

\*This service may not be available in same areas.

\*1 IEC60825-1:Ed2.0:2007 / FDA CDRH 21 CFR Part 1040.10 and 11

\*2 Average conditions: Slight haze, visibility about 20km (12 miles), sunny periods, weak scintillation.

\*3 Fine mode. With Kodak Gray Card White Side (90% reflective). When brightness on measured surface is 30,000 lx. or less. Reflectorless range/accuracy may vary according to measuring objects, observation situations and environmental conditions.

\*4 When the measuring beam's incidence angle is within 30° in relation to the reflective sheet target.

\*5 Measuring range in temperatures of -30 to -20°C (-22 to -4°F) with Low Temperature models and 50 to 60°C (122 to 140°F): RS90N-K: 1.3 to 300m (4.3 to 980ft.), RS50N-K: 1.3 to 180m (4.3 to 590ft.), RS10N-K: 1.3 to 60m (4.3 to 190ft.)

\*6 Good conditions: No haze, visibility about 40km (25 miles), overcast, no scintillation.

\*7 Measuring range: 0.3 to 200m

\*8 Typical, under good conditions. Reflectorless measurement time may vary according to measuring objects, observation situations and environmental conditions.

\*9 Control panel location may vary depending on region or model.

\*10 Usage approval of Bluetooth wireless technology varies according to country. Please consult your local office or representative in advance.

\*11 No obstacles, few vehicles or sources of radio emissions/interference in the near vicinity of the instrument, no rain.

\*12 The laser-pointer and the guide light do not work simultaneously.

\*13 Low Temperature models: -30 to 50 °C (-22 to 122°F) are available on built-to-order basis.

\*14 For OS-101, OS-102 and Low Temperature models.

## SPECIFICATIONS

| Model   | OS-101  | OS-102  | OS-103 | OS-105 | OS-107      |
|---|---|---|--------|--------|-------------|
| <b>Telescope</b>  |   |   |        |        |             |
| Magnification / Resolving power                                   | 30x / 2.5"  |   |        |        | 30x / 3.5"  |
| Others  | Length: 171mm (6.7in.), Objective aperture: 45mm (1.8in.) (48mm (1.9in.) for EDM), Image: Erect, Field of view: 1°30' (26m/1,000m), Minimum focus: 1.3m (4.3ft.), Reticle illumination: 5 brightness levels |   |        |        |             |
| <b>Angle measurement</b>  |   |   |        |        |             |
| Display resolution  | 0.5" / 1"<br>(0.0001 / 0.0002gon,<br>0.002 / 0.005mil)  | 1" / 5"<br>(0.0002 / 0.001gon, 0.005 / 0.02mil)   |        |        |             |
| Accuracy (ISO 17123-3:2001)                                       | 1"  | 2"  | 3"     | 5"     | 7"          |
| Dual-axis compensator /<br>Collimation compensation               | Dual-axis liquid tilt sensor, working range: ±6' (±111mgon) /<br>Collimation compensation available   |   |        |        |             |
| <b>Distance measurement</b>                                       |   |   |        |        |             |
| Laser output *1   | Reflectorless mode: Class 3R / Prism/sheet mode: Class 1  |   |        |        |             |
| Measuring range<br>(under average<br>conditions *2)               | Reflectorless *3<br>Reflective sheet *4 *5<br>Mini prism<br>One prism<br>Three prisms   | 0.3 to 500m (1.0 to 1,640ft.)<br>RS90N-K: 1.3 to 500m (4.3 to 1,640ft.), RS50N-K: 1.3 to 300m (4.3 to 980ft.),<br>RS10N-K: 1.3 to 100m (4.3 to 320ft.)<br>1.3 to 500m (1,640ft.)<br>1.3 to 4,000m (4.3 to 13,120ft.) / Under good conditions *6: 1.3 to 5,000m (16,400ft.)<br>to 5,000m (16,400ft.) / Under good conditions *6: to 6,000m (19,680ft.) |        |        |             |
| Display resolution  | Fine/Rapid: 0.001m / 0.01ft. / 1/8in. Tracking: 0.01m / 0.1ft. / 1/2in.   |   |        |        |             |
| Accuracy *2<br>(ISO 17123-4:2001)<br>(D=measuring distance in mm) | Reflectorless *3<br>Reflective sheet *4<br>Prism  | (3 + 2ppm x D) mm *7<br>(3 + 2ppm x D) mm<br>(2 + 2ppm x D) mm  |        |        |             |
| Measuring time *8   | Fine: 0.9s (initial 1.7s), Rapid: 0.7s (initial 1.4s), Tracking: 0.3s (initial 1.4s)  |   |        |        |             |
| <b>OS, Interface and Data management</b>                          |   |   |        |        |             |
| Operating system / Application                                    | Microsoft Windows® CE 6.0 / MAGNET Field  |   |        |        |             |
| Display / Keyboard  | 3.5inch, Semi-transmissive TFT QVGA color LCD with LED backlight,<br>Touch screen, Automatic brightness control / 26 keys with backlight  |   |        |        |             |
| Control panel location *9   | On both faces (Face 2 is only touch screen display )  |   |        |        | On one face |
| Trigger key   | On right instrument support   |   |        |        |             |
| Data storage  | Internal memory<br>Plug-in memory device  | 500MB internal memory (includes memory for program files)<br>USB flash memory (max. 8GB)  |        |        |             |
| Interface   | Serial RS-232C, USB2.0 (Type A / mini B)  |   |        |        |             |
| Bluetooth modem (option) *10                                      | Bluetooth Class 1, Ver.2.1+EDR, Operating range: up to 300m (980ft.) *11  |   |        |        |             |
| <b>General</b>  |   |   |        |        |             |
| Laser-pointer *12   | Coaxial red laser using EDM beam  |   |        |        |             |
| Guide light *12   | Green LED (524nm) and Red LED (626nm),<br>Operating range: 1.3 to 150m (4.3 to 490ft.) *3   |   |        |        |             |
| Levels  | Graphic<br>Circular level   | 6' (inner circle)<br>10' / 2mm  |        |        |             |
| Optical plummet   | Magnification: 3x, Minimum focus: 0.3m (11.8in.) from tribrach bottom   |   |        |        |             |
| Laser plummet (option)  | Red laser diode (635nm±10nm), Beam accuracy: ≤1.0mm@1.3m, Class 2 laser product   |   |        |        |             |
| Dust and water protection   | IP65 (IEC 60529:2001)   |   |        |        |             |
| Operating temperature *13   | -20 to +60°C (-4 to +140°F)   |   |        |        |             |
| Size with handle *9   | Control panel on both faces: W191 x D190 x H348mm (W7.5 x D7.5 x H13.7in.)<br>Control panel on one face: W191 x D174 x H348mm (W7.5 x D6.9 x H13.7in.)  |   |        |        |             |
| Weight with battery & tribrach                                    | Approx. 5.7kg (12.6 lb.)  |   |        |        |             |
| <b>Power supply</b>   |   |   |        |        |             |
| Battery   | BDC70 detachable battery  | Li-ion rechargeable battery   |        |        |             |
| Operating time<br>(20°C)  | BDC70<br>External battery (option) *14  | Approx. 20hours (single distance measurement every 30 seconds)<br>BT-73Q: approx. 49hours (single distance measurement every 30 seconds)  |        |        |             |

Your local Authorized Topcon dealer is: